

Evidence-Based Practice: Approaches to Save You Time and Get Results

Janet G Schnall, MS, AHIP
Information Management Librarian
Health Sciences Libraries
University of Washington, Seattle, WA
schnall@u.washington.edu

Objectives

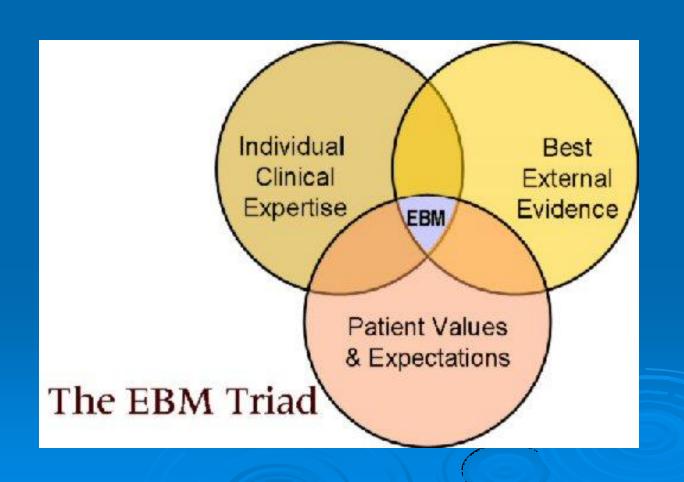
- Describe web resources to use for evidence-based nursing practice
- Identify ways to improve web research skills to search for appropriate evidence
- Perform PubMed and CINAHL searches to find evidence-based research articles
- Recognize methods to work smart and save time in looking for evidence

What is evidence-based practice?

- Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients.
- The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.

Sackett DL et al. Evidence based medicine: what it is and what it isn't. BMJ 1996 Jan 13; 312 (7023): 71-2.

Evidence-Based Practice



What makes good evidence?

Good

- Based on scientific research
- > RCT
- Systematic review
- Meta-analysis
- Clinical guidelines

Shoddy

- > Opinion
- > Consensus
- Because it's been done this way for 100 years

EBP Implications for Nursing

- Are U.S. nurses ready for evidence-based practice?
 - Many don't understand or value research
 - Many have little of no training to help find evidence on which to base their practice
 - Pravikoff DS, Tanner AB, Pierce ST. Readiness of U.S. nurses for evidence-based practice. American Journal of Nursing 2005 Sep;105(9): 40-52.
- Failure to use evidence results in lower quality, less effective and more expensive care.
 - Berwick DM. Disseminating innovations in health care. JAMA 2003 Apr 16;289(15):1969-75.

Barriers to Nurses using EBP

- > Lack of time
- Lack of value of research in practice
- Lack of understanding of electronic databases
- Lack of computer skills
- Difficulty understanding research articles

Why do nurses need to do EBP?

- Results in better patient outcomes
- Keeps practice current and relevant
- Increases confidence in decision making
- Essential for Magnet recognition
- Research gap: takes 17 years for research result to make it into practice

5 Steps for EBP

- 1. Convert need for information into answerable question
- 2. Track down best evidence to answer question
- 3. Critically appraise evidence for validity, impact and applicability
- 4. Integrate critical appraisal with your clinical expertise and patient's unique circumstances
- Evaluate effectiveness in executing steps 1-4 and seek ways to improve

Step #1: Clarify the Topic

- Is it a background or foreground question?
 - Background: can be answered from general knowledge
 - Ex. What are the side effects of ginger?
 - Foreground: a comparison question
 Ex. Is ginger effective in reducing nausea and/or vomiting in pregnancy?
- Consider using a stepwise process, e.g. PICO, to clarify your information needs & create a question that can be answered

PICO

- Patient population: For which group do you need information? Problem
- (or Exposure): What medical event do you need to study the effect of? Intervention
- Comparison: What is the evidence that the proposed intervention produces better or worse results than no intervention, or a different type of intervention?
- Outcomes: What is the effect of the intervention?

Case

> A 51-year-old woman with a total hysterectomy presents to the NP in a primary health care clinic with signs of menopause. She is having hot flashes and night sweats. She is an active and healthy woman with no family history of breast cancer or cardiovascular disease. She is reluctant to consider HRT because her friend said there is a higher risk of breast cancer. strokes, and heart attacks. However, the menopause symptoms are effecting her QoL and she wants to do something.

Initial question:

Is it safe to prescribe HRT to this woman?

Reformulated question using PICO:

Among healthy middle-aged women, does estrogen increase the incidence of breast cancer, cardiovascular death, or stroke?

What kind of question is it?

- Diagnosis
- > Therapy
- Etiology
- Prognosis
- > Prevention
- Qualitative
- > Costs/economics

Understand what you find

- Quantitative: numerical
 - Primary: RCT, cohort study....
 - Secondary: meta-analysis, systematic review practice guideline, consensus report...
- Qualitative: narrative; collection of data through observation or in-depth interviews
 - Primary: ethnography, grounded theory...
 - Secondary: meta-analysis, systematic review, practice guideline...

Rank the Evidence



Levels and Grades of Evidence

Levels of Evidence and Grades of Recommendations

1/2

Grade of recommendation	Level of evidence	Interventions
А	1a	Systematic review of randomized controlled trials
	1b	Individual randomized controlled trial
В	2a	Systematic review of cohort studies
	2b	Individual cohort study
	3 a	Systematic review of case-control studies
	3b	Individual case-control study
С	4	Case series
D	5	Expert opinion without explicit critical appraisal or based on physiology or bench research



Step #2 Search for the Best Evidence

Search Databases Efficiently for Research Journal Articles

- PubMed pubmed.gov
- NLM Gateway

gateway.nlm.nih.gov/gw/Cmd

> CINAHL or CINAHL Plus(\$)

cinahl.com

PubMed pubmed.gov

- Includes MEDLINE (1950's to present)
- Indexes 5,000 biomedical journals
- Covers all aspects of biosciences and healthcare
- > 75%-80% of citations have abstracts
- Updated 5x/week

2 PubMed Strategies for Finding Evidence-Based Citations

- Use PubMed Type of Article limits
 - Randomized Controlled Trial
 - Meta-Analysis
 - Practice Guideline
 - Clinical Trial
 - Consensus Development Conference
- Use the PubMed Clinical Queries and Systematic Reviews section









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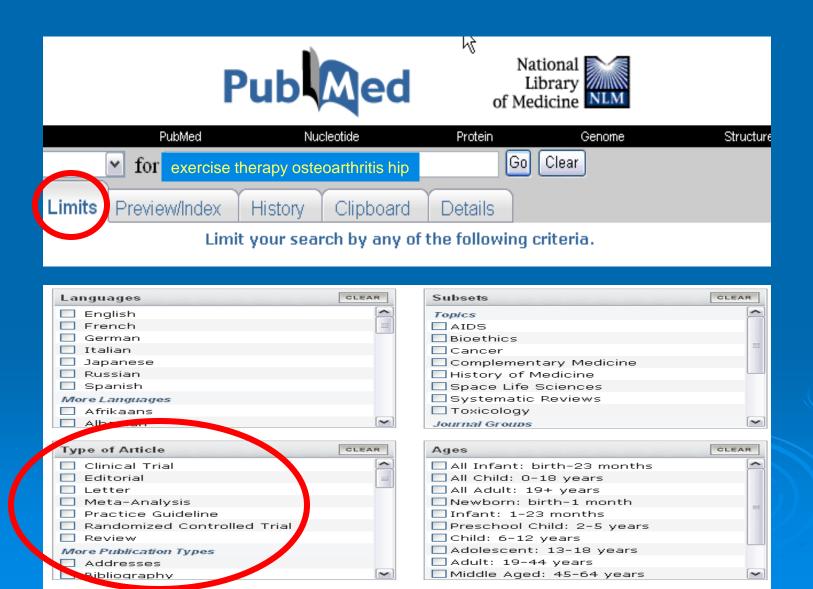
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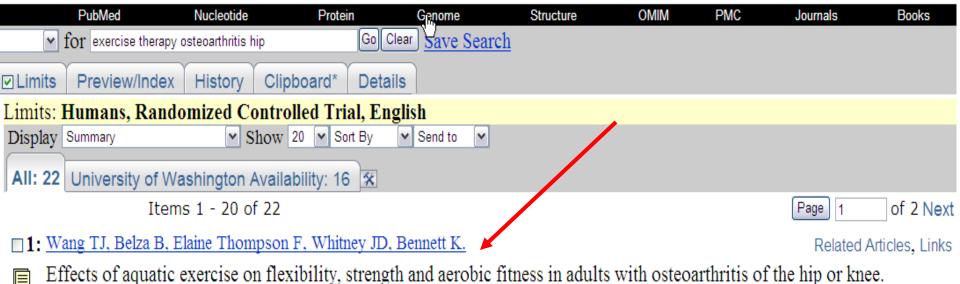
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Read the <u>PubMed Help</u> to explore other PubMed search options.

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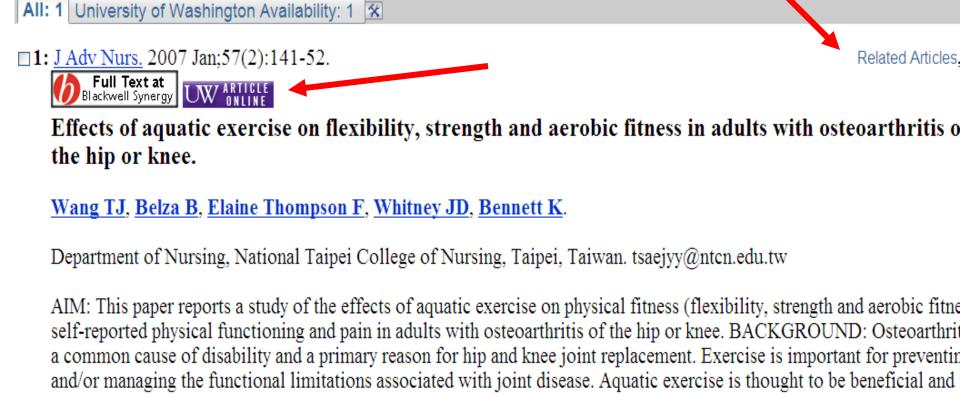
J Adv Nurs. 2007 Jan;57(2):141-52.

- ■2: <u>Hinman RS, Heywood SE, Day AR.</u>
 Related Articles, Links
- Aquatic physical therapy for hip and knee osteoarthritis: results of a single-blind randomized controlled trial.
- Phys Ther. 2007 Jan;87(1):32-43. Epub 2006 Dec 1.
 PMID: 17142642 [PubMed indexed for MEDLINE]
- 3: Veenhof C, Koke AJ, Dekker J, Oostendorp RA, Bijlsma JW, van Tulder MW, van den Ende CH.

 Related Articles, Link
- Effectiveness of behavioral graded activity in patients with osteoarthritis of the hip and/or knee: A randomized clinical trial.
- Arthritis Rheum. 2006 Dec 15;55(6):925-34.

 PMID: 17139639 [PubMed indexed for MEDLINE]
- 4: Rooks DS, Huang J, Bierbaum BE, Bolus SA, Rubano J, Connolly CE, Alpert S, Iversen MD, Katz JN.

 Related Articles, Links
- Effect of preoperative exercise on measures of functional status in men and women undergoing total hip and knee arthroplasty.



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the multidimensional Health Assessment Questionnaire, and a visual analogue scale for pain. RESULTS: Repeated measure analysis of variance showed that aquatic exercise statistically significantly improved knee and hip flexibility, strength and aerobic fitness, but had no effect on self-reported physical functioning and pain. The exercise adherence rate was 81.7%, no exercise-related adverse effect was observed or reported. CONCLUSIONS: Beneficial short-term effects of aquatic

often recommended for people with osteoarthritis; however, few studies have examined the effects on people with

osteoarthritis, and these have yielded inconsistent results. METHODS: A two-group randomized controlled trial with a convenience sample was used. Participants were recruited from community sources and randomly assigned to a 12-week aquatic programme or a non-exercise control condition. Data for 38 participants were collected at baseline, week 6, and v 12 during 2003 and 2004. Instruments were a standard plastic goniometer, a handheld dynamometer, the 6-minute walk t

JAN ORIGINAL RESEARCH

Full text article

Effects of aquatic exercise on flexibility, strength and aerobic fitness in adults with osteoarthritis of the hip or knee

Tsae-Jyy Wang¹, Basia Belza², F. Elaine Thompson³, Joanne D. Whitney⁴ & Kim Bennett⁵

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¹Tsae-Jyy Wang PhD RN Associate Professor Department of Nursing, National Taipei College of Nursing, Taipei, Taiwan

²Basia Belza PhD RN

Associated Professor

Department of Biobehavioral Nursing and Health Systems,

University of Washington,

Seattle, Washington, USA

⁴Joanne D. Whitney PhD RN

Professor

Department of Biobehavioral Nursing and
Health Systems,
University of Washington,
Seattle, Washington, USA

³F. Elaine Thompson PhD RN Professor WANG T.-J., BELZA B., THOMPSON F.E., WHITNEY J.D. & BENNETT K. (2007) Effects of aquatic exercise on flexibility, strength and aerobic fitness in adults with osteoarthritis of the hip or knee. *Journal of Advanced Nursing* 57(2), 141–152

doi: 10.1111/j.1365-2648.2006.04102.x

Abstract

Title. Effects of aquatic exercise on flexibility, strength and aerobic fitness in adults with osteoarthritis of the hip or knee.

Aim. This paper reports a study of the effects of aquatic exercise on physical fitness (flexibility, strength and aerobic fitness), self-reported physical functioning and pain in adults with osteoarthritis of the hip or knee.

Background. Osteoarthritis is a common cause of disability and a primary reason for hip and knee joint replacement. Exercise is important for preventing and/or managing the functional limitations associated with joint disease. Aquatic exercise is thought to be beneficial and is often recommended for people with osteoarthritis; however, few studies have examined the effects on people with osteoarthritis, and these have yielded inconsistent results.

Methods. A two-group randomized controlled trial with a convenience sample was



PubMed Clinical Queries

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Scope

This page provides the following specialized PubMed searches for clinicians:

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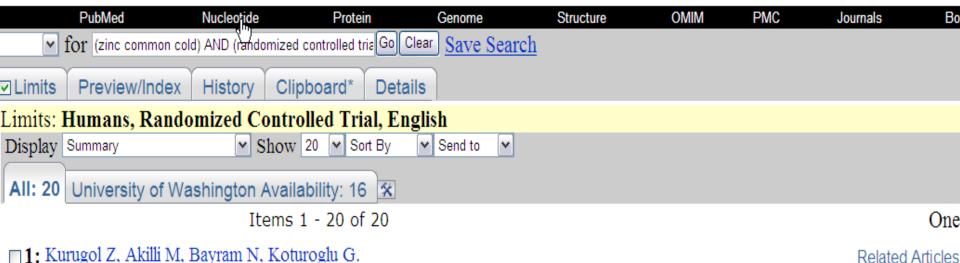
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- 1: Kurugol Z, Akilli M, Bayram N, Koturoglu G.
 - The prophylactic and therapeutic effectiveness of zinc sulphate on common cold in children. Acta Paediatr. 2006 Oct;95(10):1175-81.

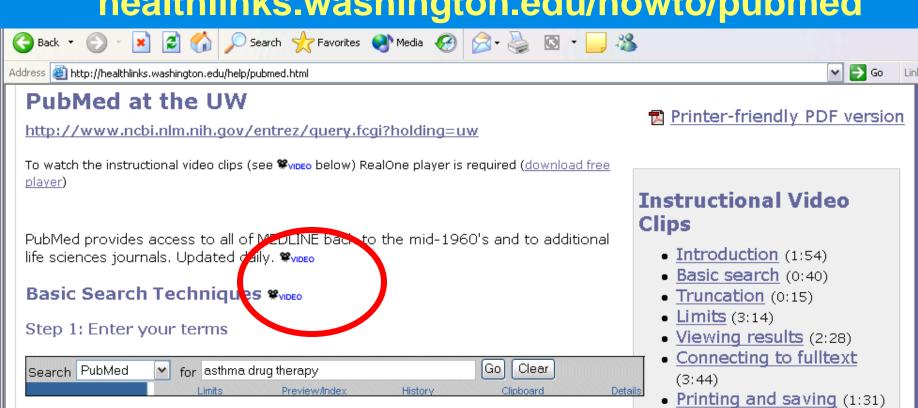
 - PMID: 16982486 [PubMed indexed for MEDLINE]
- □2: Eby GA, Halcomb WW.
- Ineffectiveness of zinc gluconate nasal spray and zinc orotate lozenges in common-cold treatment: a double-blind, place controlled clinical trial.
 - Altern Ther Health Med. 2006 Jan-Feb;12(1):34-8.
 - PMID: 16454145 [PubMed indexed for MEDLINE]
- □3: Silk R, LeFante C.

Related Articles

Related Articles

- Safety of zinc gluconate glycine (Cold-Eeze) in a geriatric population: a randomized, placebo-controlled, double-blind Am J Ther. 2005 Nov-Dec; 12(6):612-7.
 - PMID: 16280656 [PubMed indexed for MEDLINE]

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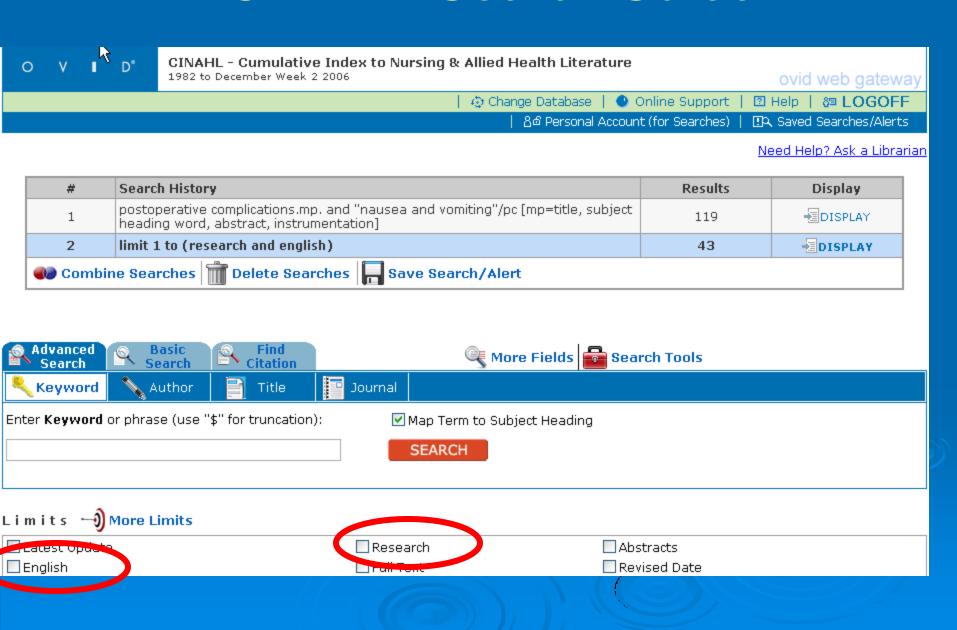
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3.	Chaiyakunapruk N. Kitikannakorn N. Nathisuwan S. Leeprakobboon K. Leelasettagool C. The efficacy of ginger for the prevention of postoperative nausea and vomiting: a meta-analysis. American Journal of Obstetrics and Gynecology. 2006 Jan; 194(1): 95-9. (29 ref) AN: 2009094663 NLM Unique Identifier: 16389016.	 Abstract Complete Reference Check for UW holdings
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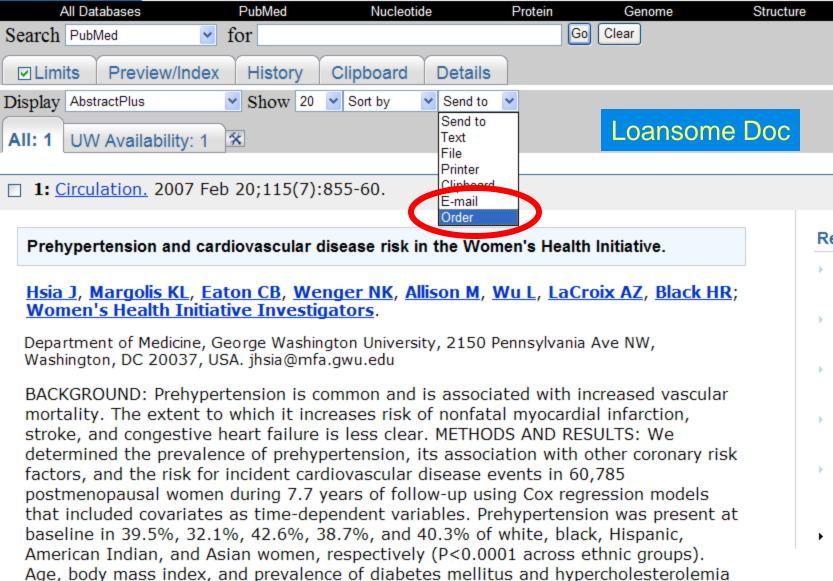




increased across blood pressure categories, whereas smoking decreased (all

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Search for Clinical Practice Guidelines

Clinical Practice Guidelines

- Systematically developed statements of appropriate care designed to assist the practitioner and patient make decisions about appropriate health care for specific clinical circumstances
- Usually based on the most current available research if from reputable, authoritative organizations
- Developed using widely varying standards
 - Cost may be considered as well as health outcomes or politics

Practice Guidelines Resources

- National Guideline Clearinghouse guideline.gov
- MD Consult (\$) www.mdconsult.com
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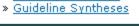


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Title

- Diagnosis and management of attention deficit hyperactivity disorder in primary care for school age Institute for Clinical Systems Improvement - Private Nonprofit Organization. 1997 Oct (revised 200
- Clinical practice guideline: diagnosis and evaluation of the child with attention-deficit/hyperactivity Pediatrics - Medical Specialty Society, 2000 May, 13 pages, NGC:001506
- Clinical practice guideline: treatment of the school-aged child with attention-deficit/hyperactivity d Pediatrics - Medical Specialty Society, 2001 Oct. 12 pages, NGC:002298
- Practice parameters for the assessment and treatment of children, adolescents, and adults with me mental disorders. American Academy of Child and Adolescent Psychiatry - Medical Specialty Societ

Brief Summary

GUIDELINE TITLE

Clinical practice guideline: diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder.

BIBLIOGRAPHIC SOURCE(S)

American Academy of Pediatrics. Clinical practice guideline: diagnosis and evaluation of the child with attention-deficit/hyperact disorder. Pediatrics 2000 May; 105(5):1158-70. [60 references]

BRIEF SUMMARY CONTENT

RECOMMENDATIONS

EVIDENCE SUPPORTING THE RECOMMENDATIONS
IDENTIFYING INFORMATION AND AVAILABILITY

Go to the Complete Summary

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Excerpted by the National Guideline Clearinghouse:

excerpted by the National Guideline Cleaninghous

RECOMMENDATION 1: In a child 6 to 12 years old who presents with inattention, hyperactivity, impulsivity, academic underachievement, or behavior problems, primary care clinicians should initiate an evaluation for attention-deficit/hyperactivity disorder (ADHD) (strength of evidence: good; strength of recommendation: strong).

Presentations of ADHD in clinical practice vary. Symptoms may not be apparent in a structured clinical setting that is free from

demands and distraction of the home and school. The following general questions may be useful at all visits for school-aged of to heighten attention about ADHD and as an initial screening for school performance:

- 1. How is your child doing in school?
- 2. Are there any problems with learning that you or the teacher has seen?
- 3. Is your child happy in school?
- 4. Are you concerned with any behavioral problems in school, at home, or when your child is playing with friends?
- 5. Is your child having problems completing classwork or homework?

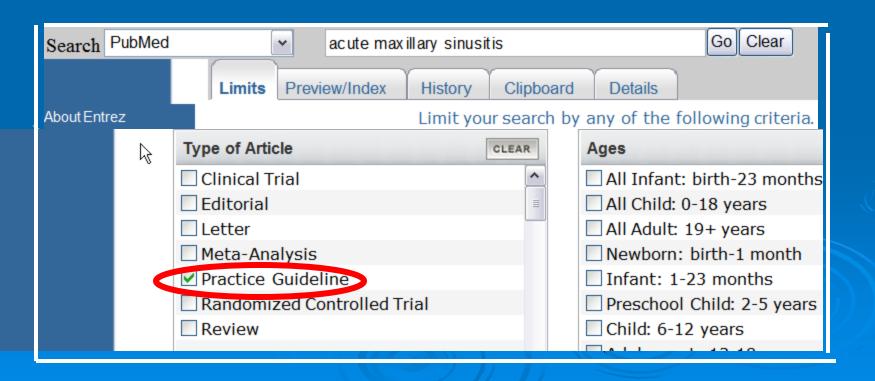
Alternatively, a previsit questionnaire may be sent to parents or given while the family is waiting in the reception area.

RECOMMENDATION 2: The diagnosis of ADHD requires that a child meet Diagnostic and Statistical Manual of Mental Disord

HIDE MENU A	Guideline Compa	arican	
Search NGC: Search Help Detailed Search Browse NGC: Disease/Condition Treatment/Intervention Organization Compare Guidelines View Guideline Collection	Guidenne Compa	Am Acad Child Adolesc Psychiatr 1997 Feb 14	Am Acad Pediatr 2000 May
	TITLE:	Practice parameters for the assessment and treatment of children, adolescents, and adults with attention-deficit/hyperactivity disorder.	Clinical practice guideline: Diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder.
	ADAPTATION:	Not applicable: The guideline was not adapted from another source.	Not applicable: Guideline was not adapted from another source.
	LENGTH:	37 pages	13 pages
	DEVELOPER(S):	American Academy of Child and Adolescent Psychiatry - Medical Specialty Society	American Academy of Pediatrics - Medical Specialty Society
	FUNDING SOURCE:	Not stated	American Academy of Pediatrics (AAP)
	RATING SCHEME:	The validity of scientific findings was judged by design, sample selection and size, inclusion of comparison groups, generalizability, and agreement with other studies.	Not applicable
	METHODS TO ANALYZE EVIDENCE:	Review	Systematic Review with Evidence Tables
	VIEW MAJOR RECOMMENDATIONS:	View Major Recommendations	View Major Recommendations
	AVAILABILITY OF FULL TEXT:	View Availability Information	View Full-text Guideline

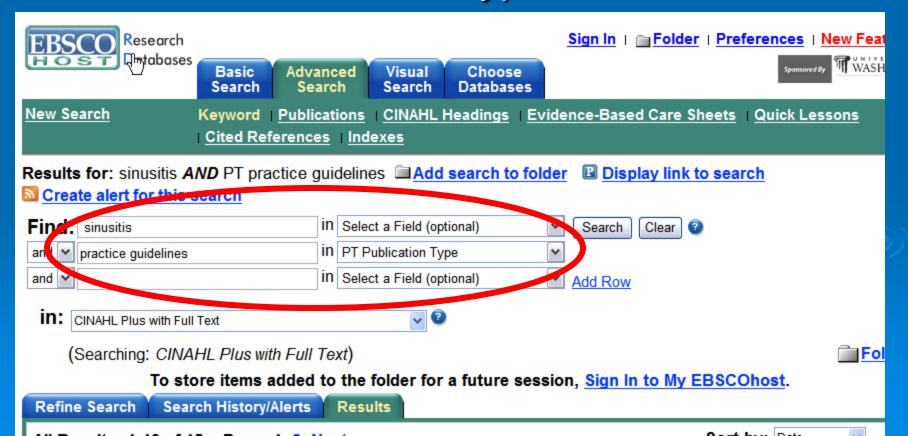
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Navigate the Web Beyond Basic Google To Find Evidence?

Navigation Difficulties

- > Size of the Web
- > Lack of control or review

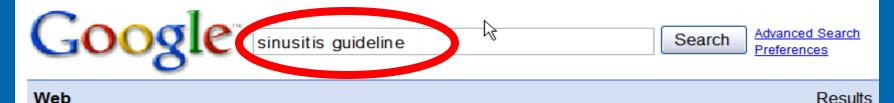




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The American Academy of Allergy, Asthma, and Immunology and the American College of Allergy, Asthma, & Immunology have jointly updated their practice ... www.medscape.com/viewarticle/518379 - Similar pages

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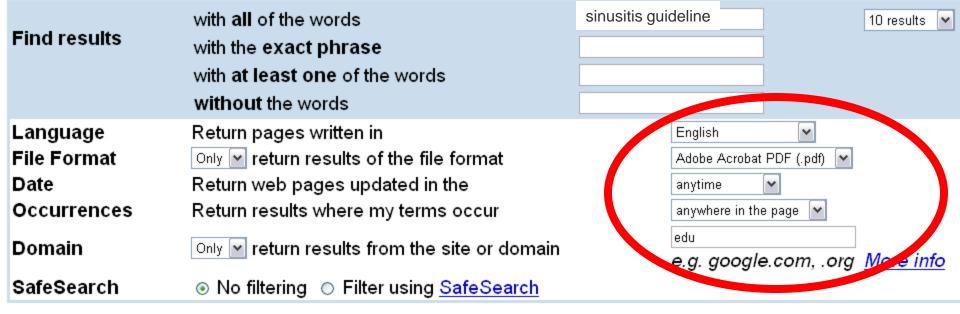
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Determine the type of site by analyzing Web Site Addresses

- A User's Guide to Finding and Evaluating Health Information on the Web
 - www.mlanet.org/resources/userguide.html

Criteria for Evaluating Web Sites

healthlinks.washington.edu/howto/navigating/criteria.pdf

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- Accuracy
- Objectivity
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- Coverage
- > Design



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how information is transmitted

sub directory

http://www.cdc.gov/nip/child.htm

name of host computer

filename

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Child health

Asthma and other wheezing disorders in children

Duncan Keeley and Michael McKean

Interventions

Key points

About this condition

Updates (19)

salbutamol (after initial stabilisation)

Single dose ipratropium bromide (inhaled) added to beta 2 agonists (in emergency

Guidelines (14)

References

You may prefer to read the key points of this review.

🚇 Print pag

We have searched the evidence for systematic and rigorous answers to the clinical questions and situations below, focusing on the outcomes that matter most to patients and clinicians. We have then categorised each treatment or intervention according to its harms and benefits in those situations.

What are the effects of treatments for acute asthma in children?

children?		
Beneficial	<u> </u>	# Beta 2 agonists (high dose nebulised) * # Corticosteroids (high dose inhaled) # Corticosteroids (systemic) # Metered dose inhaler plus spacer devices
		for delivery of beta 2 agonists (as effective as nebulisers) # Multiple dose ipratropium bromide (inhaled) added to beta 2 agonists for severe acute asthma (in emergency room) # Oxygen *
Likely to be beneficial	① ②	* Theophylline (intravenous)
Unknown effectiveness	33	* Ipratropium bromide (inhaled) added to

room)

Updates

We provid this review evidence.

Respond

Remember respond to comments have not comments

Benefits

High dose inhaled corticosteroids versus oral corticosteroids:

We found one systematic review (search date 2003, 4 RCTs, [13] ne subsequent RCT, [14] and one additional RCT. [15] The systematic review compared the effects of initial treatment with high dose inhaled corticosteroids versus oral corticosteroids in hospital emergency departments on admission rates. [13] The review did not pool results from the RCTs because of marked heterogeneity among the studies. One RCT (103 children with moderate to severe asthma, aged 5-16 years, mean initial forced expiratory volume in 1 second [FEV ,], 45%) compared fluticasone (2 mg through metered dose inhaler with spacer) versus prednisolone 2 mg/kg orally. [16] It found that prednisolone reduced hospital admission (31% with inhaled fluticasone v 10% with oral prednisolone; P = 0.01) and increased mean FEV $_{\star}$ at 4 hours (9% with inhaled fluticasone v 19% with oral prednisolone; P ≤ 0.001). [16] The second RCT (128 children with mild to moderate asthma, aged 1-17 years) in the review compared dexamethasone (1.5 mg/kg through nebuliser) versus prednisolone 2 mg orally. [17] It found no significant difference between nebulised dexamethasone and oral prednisolone in rates of hospital admission (12/56 [21%] with nebulised dexamethasone v 17/55 [31%] with oral prednisolone; ARR +9.5%, 95% CI -8.0% to +21.0%; RR 0.69, 95% CI 0.36 to 1.27), but found fewer relapses with nebulised dexamethasone within 48 hours after discharge (0/44 [0%] with nebulised dexamethasone v 6/38 [16%] with oral prednisolone; ARR 16.0%, 95% CI 27.0% to 4.5%); however, all children in the RCT received a 5 day course of prednisolone (2 mg/kg/day) on discharge. [17] In the remaining two RCTs (104 children with mild to moderate asthma), budesonide (800 ug through nebuliser at 1, 30, and 60 minutes; [18] 1600 µg through turbohaler [19]) was compared with prednisolone 2 mg/kg orally. [18] [19] One RCT found no significant difference between treatments in hospital admission (1/41 [2.4%] with inhaled corticosteroids v 5/39 [12.8%] with oral corticosteroids; OR 0.17, 95% CI 0.02 to 1.53). [18] The other RCT reported no admissions. [19] The subsequent RCT (321 children aged 4-16 years, peak expiratory flow rate 40-75% predicted) compared nebulised fluticasone (1 mg twice daily for 7 days) versus oral prednisolone (2 mg/kg for 4 days then 1 mg/kg for 3 days). It found that nebulised fluticasone significantly improved mean morning peak expiratory flow rate over 7 days compared with oral prednisolone (difference 9.5 L/minute, 95% CI 2.0 L/minute to 17.0 L/minute). No significant differences were found in symptom scores or withdrawals, [14] The additional RCT (46 children, aged 5-16 years, admitted to hospital with severe exacerbations of asthma) compared nebulised budesonide (2 mg/hour) versus oral prednisolone 2 mg/kg at admission and after 24 hours. [15] It found no significant difference between groups in FEV 1 at 24 hours, or at 3 and 24 days after admission. All children in this trial were treated with budesonide 800 µg daily after discharge from hospital.

Harms

Top

The systematic review found no significant adverse effects with inhaled corticosteroids. [13] The subsequent RCT found no significant difference in the profile of adverse events between inhaled fluticasone and oral prednisolone, except

Clinical Evidence





Evidence Based Nursing

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- Practicing clinicians assess the clinical relevance of the best studies
- Key details of these essential studies are presented in a succinct, informative abstract with an expert commentary on its clinical application

Evidence Based Nursing review

Review: soft drink consumption is associated with increased energy intake and body weight

Vartanian LR, Schwartz MB, Brownell KD. Effects of soft drink consumption on nutrition and health: a systematic review and metaanalysis. Am J Public Health 2007;97:667–75.

Q Is soft drink consumption associated with increased energy intake, increased body weight, displacement of nutrients, and an increased risk of chronic disease?

METHODS



Data sources: Medline, PsycINFO, Web of Science database, bibliographies of identified articles, and authors of included articles.



Study selection and assessment: articles that assessed the relation between soft drink consumption and the 4 primary outcomes listed below. 88 articles (cross-sectional studies, longitudinal studies, and randomised controlled trials) were included in the analysis



Outcomes: milk intake nutrition ar as follows:

medium, a

CONCLUSION

Soft drink consumption is associated with increased energy intake and body weight and reduced milk and calcium intake.

MAIN RESULTS

Only the results of me longitudinal studies associated with incr reduced milk and cal For correspondence: Dr K D Brownell , Yale University, New Haven , CT, USA. kelly.brownell@yale.edu

Source of funding: Rudd Foundation.

Commentary

The review by Vartanian et al adds to our knowledge of the negative effects of soft drink consumption on nutrition and health. Overall, this review of 88 randomised controlled trials, longitudinal, and cross-sectional studies was strong. The authors considered variables such as funding sources, and the results of the review are strengthened by greater

review: The greater the soft drink consumption, the greenergy intake. Using clinical expertise, most practitioners that the benefits of limiting soft drink consumption outw. Thus, the review by Vartanian et al provides practitioners w recommend limiting soft drink consumption to their dients.

Jennifer

New York University Colle

Associations between soft drink consumption and various outcomes*

Outcomes Number and type of studies Mean effect size (p

Evidence-Based Nursing

Contents

Purpose and procedure		A care management intervention improved depression after stroke	
EBN notebook		Assessment (screening or diagnosis)	
How to write a commentary—an editor's perspective		Review: ultra-short screening tests are not highly	
Thanks to our commentators who contributed to Evidence-Based Nursing in 2007		accurate for detecting depression in primary care	
		Causation	
Treatment		Review: bed sharing between parents and infants	
A cognitive-behavioural parenting intervention reduced problem behaviours in at-risk preschool children and improved parenting skills in socially disadvantaged families		exposed to smoke may increase the risk of sudden infant death syndrome	
		Review: soft drink consumption is associated with increased energy intake and body weight	
Review: advance provision of emergency contraception increases its use but does not reduce unplanned pregnancies		Quality improvement	
		Use of a treatment algorithm did not improve blood pressure control in primary care patients with type 2	
		diabetes	
		Clinical prediction guide	
Duct tape was not effective for common warts in adults Review: inhaled corticosteroids increase risk of oral candidiasis, dysphonia, and pharyngitis in persistent			
		A severity score comprising patient age, ulcer chronicity, and venous refill time predicted venous leg ulcer healing at 24 weeks	
			- 1

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Helo

Overview of the management of osteoporosis in women

<u>Hillel N Rosen, MD</u> Marc K Drezner, MD

Hart Diezner, M

UpToDate performs a continuous review of over 330 journals and other resources. Updates are added as important new information is published. The literature review for version 13.3 is current through August 2005; this topic was last changed on September 13, 2005. The next version of UpToDate (14.1) will be released in February 2006.

INTRODUCTION — Prevention and treatment of esteoporosis consists of non-drug and drug or hormonal therapy [1.2]. This topic

INTRODUCTION — Prevention and treatment of osteoporosis consists of non-drug and drug or hormonal therapy [1,2]. This topic review will provide an overview of the approach to therapy of osteoporosis in postmenopausal women. The treatment of osteoporosis in men, and the pathogenesis, causes, and diagnosis of osteoporosis are discussed separately. (See "Overview of osteoporosis in men", see "Epidemiology and causes of osteoporosis", and see "Pathogenesis of osteoporosis" and see "Clinical manifestations and diagnosis of osteoporosis", section on Suggested approach to exclude secondary causes).

In the past, estrogen replacement was considered a primary therapy for the prevention of postmenopausal osteoporosis. Estrogen had the additional advantages of controlling menopausal symptoms and presumptive prevention or delay of cardiovascular disease. However, data from the Women's Health Initiative (WHI) revealed that estrogen-progestin therapy does not reduce the risk of coronary heart disease, and increases the risk of breast cancer, stroke, and venous thromboembolic events [3]. (See "Postmenopausal hormone therapy: Benefits and risks").

As a result of these findings, other antiresorptive agents are now the drugs of choice, and are prescribed more frequently for the prevention and treatment of osteoporosis in postmenopausal women [4].

NONPHARMACOLOGIC THERAPY — There are three components to the nondrug therapy of osteoporosis: diet, exercise, and cessation of smoking. In addition, affected patients should avoid, if possible, drugs that increase bone loss, such as glucocorticoids. (See "Glucocorticoids and osteoporosis: Pathogenesis and clinical features" and see "Drugs that affect bone metabolism").

Calcium/Vitamin D — An optimal diet for treatment (or prevention) of osteoporosis includes an adequate intake of calories (to avoid malnutrition), calcium, and vitamin D.

Postmenopausal women (and older men) should take adequate supplemental elemental calcium (generally 500 to 1500 ma/day), in divided doses, at mealtime, such that their total calcium intake, inclusive of food calcium, approximates 1500 mg/day [5]. (See Calcium supplementation in osteoporosis"). In addition to its beneficial effects on the skeleton, calcium supplementation may favorable affect serum lipids [6]. Furthermore, there is some evidence that calcium intake is inversely associated with cardiovassal in postmenopausal women. (See "Lipid lowering with diet or dietary supplements", section on Calcium).

Women should also ingest a total of 800 IU of <u>vitamin D</u> daily. Higher doses are required if they have malabsorption or rapid metabolism of vitamin D due to concomitant anticonvulsant drug therapy. Data on the efficacy of vitamin D replacement for osteoporosis are discussed in detail elsewhere. (See "Vitamin D therapy in osteoporosis", section on Recommendations).

Diet — When celiac disease is a major contributor to osteopenia, a gluten-free diet will result in improvement in bone mineral density [7]. (See "Management of celiac disease in adults").

Protein intake may be an important component of the diet, particularly in women who already have osteoporotic fractures. This was

Overview of the management of osteoporosis in

►INTRODUCTION ►NONPHARMACOLOGIC THERAPY

- Calcium/Vitamin D
 Diet
- *<u>Exercise</u> -Intensity of exercise

women

- Cessation of smoking
 DRUG THERAPY
- Monitoring the response to therapy
 Option 1
- <u>Option 2</u> - <u>Option 3</u> - Option 4
- +Bisphosphonates +Selective estrogen receptor modulators
- Estrogen/progestin therapy
 Premenopausal women with hypothalamic amenorrhea
- +Parathyroid hormone
- +<u>Parathyroid hormone</u> -PTH plus bisphosphonate therapy
- + <u>Calcitonin</u>
 + Calcitriol
- + Sodium fluoride + Combination therapy
- + <u>Isoflavones</u> + Thiazide diuretics
- + Thiazide diuretics + Tibolone
- Recommendations
 MEDICAL INTERVENTION AFTER FRACTURE
- OTHER POTENTIAL THERAPIES
 Androgens
- Growth factors
- +Statins +Strontium ranelate
- +Folate and vitamin B12 ▶REFERENCES

GRAPHICS

▶FIGURES
 ◆Alendronate dose osteoporosis

RELATED TOPICS

- Alendronate prevents bone loss
 Continuous alendronate and BMD
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Carpal tunnel syndrome

Updated 2007 Sep 21 03:37 PM: review article commentary (BMJ 2007 Sep 1) Work Loss Data Institute disability guideline for carpal tunnel syndrome (National

Guideline Clearinghouse 2007 Sep 3) continued peer review

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Complications and Associated Conditions

History

Physical Diagnosis

Prognosis

Treatment

Prevention and Screening

Patient Information

Acknowledgements

General Information

(including ICD-9/-10 Codes)

Causes and Risk

Factors

Complications and Associated

Conditions History

Physical

Diagnosis

Prognosis

Treatment

Prevention and

Screening

References including Reviews and Guidelines

Treatment overview:



Level 1 evidence

- treat any underlying disorder
- avoid, reduce or modify exacerbating activities (including ergonomic change
- treatments with randomized trial evidence for short-term efficacy
 - local corticosteroid injection systematic review of 12 trials (level 1 [likely reliable] evidence)
 - oral corticosteroids 2 trials (<u>level 1 [likely reliable] evidence</u>)
 - yoga 1 trial (level 2 [mid-level] evidence)
 - continuous low-level heat wrap therapy 1 trial (level 2 [mid-level] evidence)
 - o carpal bone mobilization 1 trial (level 2 [mid-level] evidence)
 - lidocaine patch 5% 1 trial compared to injection (level 2 [mid-level] evidence)
 - local insulin injection 1 trial in patients with diabetes (level 2 [mid-level] evidence)
- treatments with inconsistent evidence for short-term efficacy
 - splinting (hand brace) (level 2 [mid-level] evidence)
 - exercises (level 2 [mid-level] evidence)
 - o pyridoxine (vitamin B6) likely ineffective (level 2 [mid-level] evidence)
 - therapeutic ultrasound (level 2 [mid-level] evidence)
 - ergonomic keyboards (level 2 [mid-level] evidence)
 - o topical steroids via iontophoresis/phonophoresis (level 2 [mid-level] evidence)
- treatments unlikely to be beneficial ineffective in randomized trials
 - NSAIDs (level 2 [mid-level] evidence)
 - o diuretics (level 2 [mid-level] evidence)
 - magnet therapy (level 2 [mid-level] evidence)
 - chiropractic care (level 2 [mid-level] evidence)
 - o internal neurolysis in conjunction with open carpal tunnel release

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Randomised, controlled trial of alternating pressure mattresses compared with alternating pressure overlays for the prevention of pressure ulcers: PRESSURE (pressure relieving support surfaces) trial. RMJ. 2006

Pressure ulcer prevention

NHS Quality Improvement Scotland, 2005

Support surfaces for pressure ulcer prevention

Cochrane Database of Systematic Reviews, 2004

Prevention of pressure ulcers.

National Guideline Clearinghouse (USA), 2002

Prediction and prevention of pressure ulcers in adults.

National Guideline Clearinghouse (USA), 2001

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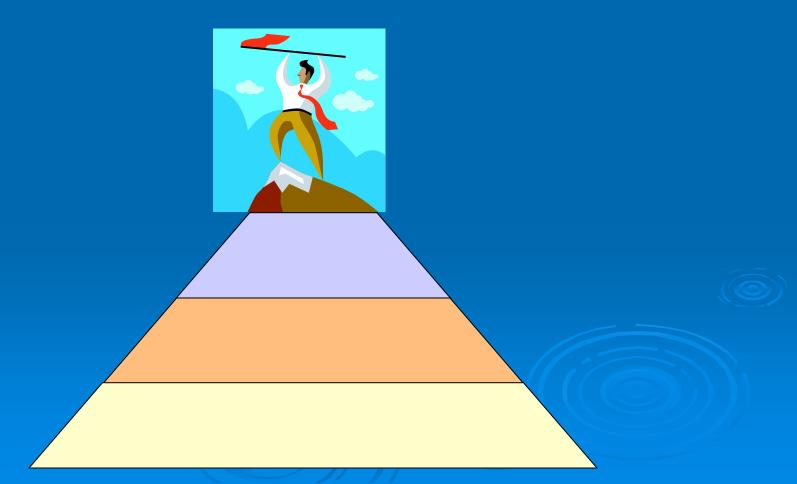
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- 0.05% 1.1 0.1 1.4 1.3			
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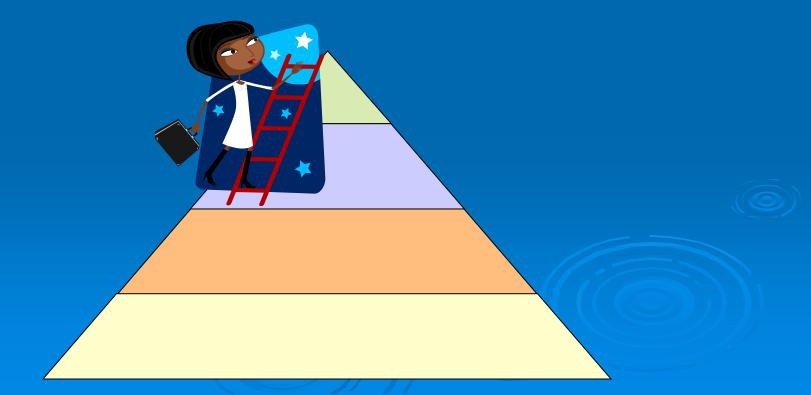
Search for Systematic Reviews and Meta-Analyses

Top of the evidence pyramid



Search for Systematic Reviews and Meta-Analyses

Top of the evidence pyramid



A **Systematic review:** is a literature review focused on a single question which tries to identify, appraise, select and synthesize all high quality research evidence relevant to that question.

Meta-analyses: are systematic reviews that combine the results of several studies using quantitative statistics.

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[Review] Support surfaces for pressure ulcer prevention

PDF (Size 366K)

- Abstract
- Plain language summary
- Background
- Objectives
- Criteria for considering studies for this review
- · Search methods for identification of studies
- . Methods of the review
- Description of studies
- Methodological quality
- Results

studies

- Discussion
- Authors' conclusions
- Potential conflict of interest
- Characteristics of included

· Acknowledgements

 Characteristics of excluded studies

[Review]

Support surfaces for pressure ulcer prevention

N Cullum, E McInnes, SEM Bell-Syer, R Legood

Cochrane Database of Systematic Reviews 2007 Issue 1

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DOI: 10.1002/14651858.CD001735.pub2 This version first published online: 19 July 2004 in Issue 3, 2004 Date of Most Recent Substantive Amendment: 20 May 2004

This record should be cited as: Cullum N, McInnes E, Bell-Syer SEM, Legood R. Support surfaces for pressure ulcer prevention. Cochrane Database

No.: CD001735, DOI: 10.1002/14651858.CD001735.pub2.

Abstract

Background

Pressure ulcers (also known as bedsores, pressure sores, decubitus ulcers) are areas of localised damage to the skin and underlying to friction. They are common in the elderly and immobile and costly in financial and human terms. Pressure-relieving beds, mattresses ar aids to prevention in both institutional and non-institutional settings.

Objectives

This systematic review seeks to answer the following questions:

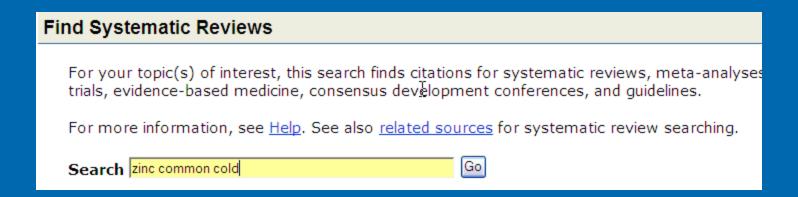
- to what extent do pressure-relieving cushions, beds, mattress overlays and mattress replacements reduce the incidence of pressu support surfaces?
- how effective are different pressure-relieving surfaces in preventing pressure ulcers, compared to one another?

Search strategy

The Specialised Trials Register of the Cochrane Wounds Group (compiled from regular searches of many electronic databases included in the Cochrane Wounds Group (compiled from regular searches).

Finding Systematic Reviews and Meta-Analyses in *PubMed*

Use Clinical Queries Section: Systematic Reviews

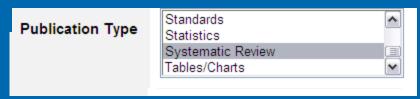


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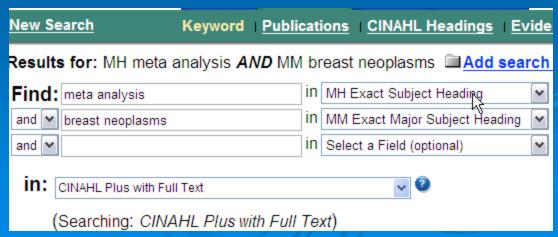


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- Natural Medicines Comprehensive Database (\$)
 - www.naturaldatabase.com
- > Natural Standard Online
 - Available through MedlinePlus
 - www.nlm.nih.gov/medlineplus/druginformation.html

Micromedex (\$) www.micromedex.com

- Clinical information on toxicology, drugs, drug interactions, and reproductive risks
- Provides evidence-based medical information: DiseaseDex
- Provides evidence-based drug information
- Available at most hospitals and on the UW HealthLinks Care Provider Toolkit

INSULIN

(back to to

Expand All | Collapse All

Overview

Dosing Information

- · Drug Properties
- · Storage and Stability
- Adult Dosage
- · Pediatric Dosage

Pharmacokinetics

- · Onset and Duration
- Drug Concentration Levels
- ADME

Cautions

- Contraindications
- Precautions
- Adverse Reactions
- Teratogenicity / Effects in Pregnancy / Breastfeeding
- . Drug Interactions

Clinical Applications

- · Monitoring Parameters
- Patient Instructions
- · Place in Therapy
- Mechanism of Action / Pharmacology
- Therapeutic Uses
- Comparative Efficacy / Evaluation With Other Therapies

References

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3.3 Adverse Reactions

Cardiovascular Effects
Dermatologic Effects
Endocrine/Metabolic Effects
Gastrointestinal Effects
Hematologic Effects
Hepatic Effects
Immunologic Effects
Neurologic Effects
Ophthalmic Effects
Otic Effects

Respiratory Effects

Other

Micromedex

3.3.1 Cardiovascular Effects

Cardiomyopathy
Cardiovascular finding
Chest pain
Edema

3.3.1.A Cardiomyopathy

- 1) Summary
 - a) Premature infants who were treated for respiratory symptoms became hyperglycemic upon administration of total particles are developed cardiomyopathy that was resolved upon cessation of dexamethasone and insulin (Gill et al, 1996).
- 2) LITERATURE REPORTS
 - a) Two infants born of 35 and 35 weeks of gestation developed cardiomyopathy on days 25 and 29, respectively, follow few days of kirth (Gill et al, 1996). Dexa nethasone 1 milligram/kilogram/day or less was used in both infants for respirate became problematic in both infants during administration of total parenteral nutrition solutions (TPN), insulin 1.5 to 2.25 dexamethasone and insulin, the cardiomyopathy resolved within a few days. Hypertrophic cardiomyopathy has been remellitus and is probably due to excess insulin. Glucocorticoids are also associated with hypertrophic cardiomyopathy.

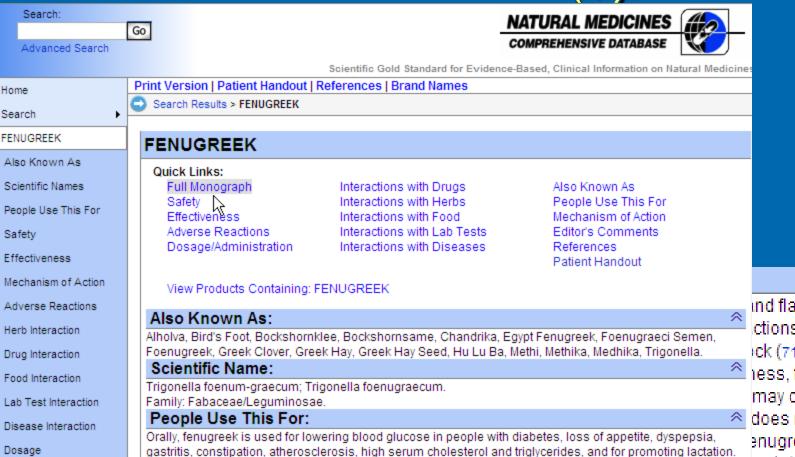
3.3.1.B Cardiovascular finding

- 1) Summary
 - a) Insulin-induced hypoglycemia not only produces electrocardiogram (ECG) changes but also causes various arrhyth PREMATURE VENTRICULAR CONTRACTIONS (PVC) (Shimada et al, 1984). Increases in the level of plasma epinephr with changes in the frequency of PVCs.
- 2) Insulin induced hypoglycemia has been associated with electrocardiogram changes resulting in various arrhythmias as

3.3.1.C Chest pain

- 1) Incidence: 4.7%
- 2) Non-specific chest pain occurred in 4.7% of inhaled insulin treated patients compared with 3.2% of patients in comparat moderate severity. The incidence was similar between inhaled insulin and the comparator agent for all-causality adverse evangina pectoris (0.7% vs 1.3%, respectively) or myocardial infarction (0.7% vs 0.7%, respectively) (Prod Info EXUBERA(R) in

Natural Medicines Comprehensive Database (\$)



ind flatulence (622,12534). V ctions including nasal con ck (719). The paste of fenu ness, facial swelling, and w may cause the neonate to 🔼 does not appear to cause I enugreek tea. Loss of

Interactions with Herbs & Supplements:

Dosage

HERBS WITH ANTICOAGULANT/ANTIPLATELET POTENTIAL: Concomitant use of herbs that have co that might affect platelet aggregation could theoretically increase the risk of bleeding in some people (5191,7182,7389). These herbs include angelica, clove, danshen, garlic, ginger, ginkgo, red clover, tur

consciousness may aiso occur in children drinking lea made irom lenugreek (9782).

Drugs, Supplements & Herbal Information page

www.nlm.nih.gov/medlineplus/druginformation.html

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Drug Information

Browse by first letter of generic or brand name drug:

Information on thousands of prescription and over-the-counter medications is provided through two drug resources

- MedMaster^{™†}, a product of the American Society of Health-System Pharmacists (ASHP)
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For additional drug information, see the MedlinePlus drug therapy topic pages.

Herbs and Supplements

ABCDEFGHIJKIJL MN(OP

Natural Standard is an international research collaboration that aggregates and synthesizes data on complementary and alternative therapies.

- Using a comprehensive methodology and reproducible grading scales, information is created that is evidence-based, consensus-based, and peer-reviewed
- Tapping into the collective expertise of a multidisciplinary Editorial Board.

For additional herb and supplement information, see the MedlinePlus herbal medicine topic page.

105 Herbs and Supplements Monographs in English & Spanish Peppermint oil

Peppermint oil (Mentha x piperita L.)

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While some complementary and afternative techniques have been studied scientifically, high-quality data regarding safety, effectiveness, and mechanism of action are limited or controversial for most therapies. Whenever possible, it is recommended that practitioners be licensed by a recognized professional organization that adheres to clearly published standards. In addition, before starting a new technique or engaging a practitioner, it is recommended that patients speak with their primary healthcare provider(s). Potential benefits, risks (including financial costs), and alternatives should be carefully considered. The below monograph is designed to provide historical background and an overview of clinically-oriented research, and neither advocates for or against the use of a particular therapy.

Related Terms:

- Balm mint, black peppermint, brandy mint, curled mint, Feullis de menthe, Japanese
 peppermint, Katzenkraut (German), lamb mint, Mentha arvensis L. var piperascens, menta
 prima (Italian), Menthae piperitae aetheroleum (peppermint oil), Menthae piperita var officinalis,
 Menthae piperitae folium (peppermint leaf), Menthe anglaise, Menthe poivre, Menthe poivree,
 Mentha piperita var vulgaris, Our Lady's mint, pebermynte (Danish), Pfefferminz (German),
 Porminzen, Schmecker, spearmint (Mentha spicata L.), water mint (Mentha aquatica), white
 peppermint, WS(R) 1340.
- Essential oil constituents: Cineol, isomenthone, liminene, menthofuran, menthol, menthone, menthyl acetate, terpenoids.
- Leaf constituents: Caffeic acid, chlorogenic acid, luteolin, hesperidin, rutin, "volatile" oil.
- Selected brand names: Ben-Gay®, Colpermin®, China Maze, Cholaktol, Citaethol, Enteroplant® (contains peppermint and caraway oil), Kiminto, Mentacur, Mentholatum, Mintec, Rhuli Gel®, Robitussin® cough drops, SX Mentha®, Vicks VapoRub®.
- Combination products: Absorbine Jr.®, Iberogast®, Listerine®.

Aceite de menta (menta piperita)

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No obstante se han estudiado de forma científica ciertas técnicas pomplementarias y alternas, para la mayoría de las terapias hay limitación o controversia sobre los datos de alta baldad respecto a la seguridad, eficacia y mecanismo de acción. Se recomienda, al máximo posible, que los practicantes cuenten con licencias expedidas por una organización profesional reconocida que se adhiera a normas claramente publicadas. Además, antes de iniciar una nueva técnica o contratar a un practicante, se recomienda que los pacientes consulten con su(s) proveedor(es) médico(s) principal(es). Se deben considerar atentamente los beneficios y riesgos potenciales (incluye los costos financieros) así como las alternativas. La siguiente monografía está diseñada para ofrecer una historia y un resumen de la investigación con orientación clínica, y la misma ni defiende ni se opone al uso de una terapia en particular.

Términos relacionados:

- Bálsamo de menta, menta negra, menta de brandy, menta crespa, Feullis de menthe, menta japonesa, Katzenkraut (alemán), menta de cordero, menta arvenis, L. var piperascens, menta prima (italiano), Menthae piperitae aetheroleum (aceite de menta) Menthae piperita var officinalis, Menthae piperitae folium (hoja de menta), Menthe anglaise, , Menthe poivree, Mentha piperita var vulgaris, Our Lady's mint, pebermynte (danés), Pfefferminz (alemán), Porminzen, Schmecker, hierbabuena (Menta spicata), menta acuática (Mentha aquatica), menta blanca, WS (R) 1340.
- Elementos constituyentes esenciales del aceite: Cineol, isomentona, limoneno, mentofurano, mentol, mentona, acetato de mentilo, terpenoides.
- Elementos constituyentes de la hoja : Ácido cafeíco, ácido clorogénico, luteolina, hesperidina, rutín, aceite "volátil".
- Selección de marcas registradas: BenGay®, Colpermin®, China Maze, Cholaktol, Citaethol, Enteroplant® (contiene aceite de menta y alcaravea), Kiminto, Mentacur, Mentholatum, Mintec, Rhuli Gel®, Robitussin® cough drops (pastillas para la tos), SX Mentha®, Vicks VaooRub®.

Evidence Return to top

These uses have been tested in humans or animals. Safety and effectiveness have not always been proven. Some of these c should be evaluated by a qualified healthcare provider.

Uses based on scientific evidence	<u>Grade</u> *
Indigestion (non-ulcer dyspepsia)	
There is preliminary evidence from a small number of controlled trials that a combination of peppermint oil and caraway oil may be beneficial for dyspepsia (heartburn) symptoms. However, most studies have been poorly designed (methodologically weak with small sample sizes, inadequate use of control or placebo groups, unclear descriptions of blinding and randomization, and lack of use of standardized scales for identifying subjects or assessing endpoints). It is not clear which constituent(s) may be beneficial. Nonetheless, the existing evidence does suggest efficacy of this combination. It should be noted that heartburn can actually be a side effect of taking oral peppermint oil, which has been reported by patients in several controlled trials of peppermint oil. Patients with chronic heartburn should be evaluated by a qualified healthcare provider and may be advised to undergo a diagnostic endoscopy prior to initiating any treatment for heartburn.	В
Irritable howel cyndrome (IRS)	

suggest efficacy of this combination. It should be noted that heartburn can actually be a side effect of taking oral peppermint oil, which has been reported by patients in several controlled trials of peppermint oil. Patients with chronic heartburn should be evaluated by a qualified healthcare provider and may be advised to undergo a diagnostic endoscopy prior to initiating any treatment for heartburn.	
Irritable bowel syndrome (IBS) Multiple randomized controlled trials of peppermint suggest significant improvements in irritable bowl syndrome (IBS) symptoms. Although the mechanism of action is not clear, pre-clinical studies suggest smooth muscle relaxing properties of peppermint (calcium antagonism may play a role). Enteric-coated peppermint preparations are generally recommended. Overall, studies have been brief with small sample sizes and methodological weaknesses (unclear diagnostic criteria, lack of validated measurement scales, unclear blinding and randomization procedures). Well-designed large trials are necessary before a strong recommendation can be made. Future studies should use	В
standardized symptom scales and established diagnostic criteria to classify patients proir to enrollment (such as	

C

Rome II Diagnostic Criteria), uniform dosing and standardization, and longer duration. Antispasmodic (gastric spasm) One study reports that peppermint oil solution administered intraluminally can be used as an antispasmodic agent

with superior efficacy and fewer side effects than hyoscine-N-butylbromide administered by intramuscular injection during upper endoscopy. Tension headache С

Application of diluted peppermint oil to the forehead and temples has been tested in people with headache. Studies

have not been well conducted, and it is not clear if this is an effective treatment.

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ScienceDirect Search	ScienceDirect Journals	yes

Step #3: Evaluate the Literature

Resource Table and Tips for Evaluating the Literature

- ➤ Table: Brockoff DY, Hastings-Tolsma MT. Fundamentals of nursing research. 3rd ed. Sudbury, MA: Jones and Bartlett, 2003. p. 64-9
- Tip sheets on how to evaluate different kinds of studies: www.mclibrary.duke.edu/training/pdaformat

Evidence Based Nursing evaluation articles

- Cullum N. Evaluation of studies of treatment or prevention interventions. Evid Based Nurs 2000 Oct;3(4):100-2. and Part 2: applying the results of studies to your patients. Evid Based Nurs 2001 Jan;4(1):7-8.
- Ciliska D, Cullum N, Marks S. Evaluation of systematic reviews of treatment or prevention interventions. Evid Based Nurs 2001 Oct;4(4):100-4.
- Jull A. Evaluation of studies of assessment and screening tools, and diagnostic tests. Evid Based Nurs 2002 Jul;5(3):68-72.
- Russell CK, Gregory DM. Evaluation of qualitative research studies. Evid Based Nurs 2003 Apr;6(2):36-40.

Evidence Based Nursing evaluation articles, continued

- Fineout-Overholt E, Melnyk BM. Evaluation of studies of prognosis. Evid Based Nurs 2004 Jan;7(1):4-8.
- Adamson J. Evaluation of studies of causation (aetiology). Evid Based Nurs 2004 Apr;7(2):36-40.
- Graham ID, Harrison MB. Evaluation and adaption of clinical practice guidelines. Evid Based Nurs 2005 Jul;8(3);68-72.
- Marks S, Ciliska D, Jull. Evaluation of studies of treament harm. Evid Based Nurs 2006 Oct;9(4):100-4.
- Haynes B. Of studies, syntheses, synopses, summaries, and systems: the "5S" evolution of information services for evidence-based healthcare decisions. Evid Based Nurs 2007 Jan;10(1):6-7.

5 Steps for EBP

- 1. Convert need for information into answerable question
- 2. Track down best evidence to answer question
- 3. Critically appraise evidence for validity, impact and applicability
- 4. Integrate critical appraisal with your clinical expertise and patient's unique circumstances
- Evaluate effectiveness in executing steps 1-4 and seek ways to improve

Final Thoughts

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Evidence-Based Practice: Approaches to Save You Time and Get Results

PowerPoint presentation located:

healthlinks.washington.edu/hsl/liaisons/schnall/ebpnov2007.ppt